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Photo by: Ken Sherman

Research shows that contact with nature can make us well.

By Francesca Lyman

One day last year, Howard Frumkin, M.D., sat in his office at Atlanta's Emory University, flinching as he watched bulldozers rip out a whole landscape of Georgia forest--two acres of hardwood oak and maple trees--to put up more medical buildings. The sight did not make him feel happy or healthy.

The longtime researcher in environmental and occupational medicine at the Rollins School of Public Health was struck by a fundamental irony. "It was a sad thing to watch," says Frumkin. "The once-beautiful forest view out my window is now a brick wall."

Besides shattering his lovely personal view, the event also changed his perspective on his profession. It got the doctor thinking about the neglected place of nature in contemporary health care. Despite a long tradition stretching from ancient Greece to the New England transcendentalists to conservationists like John Muir, healers seemed to have lost track of the idea that, "the human relationship with nature ... might be a component of good health," says Frumkin.

It may be that we humans are hard-wired to have "a deep-seated connection with the natural world," writes Frumkin. He quotes biologist E. O.

Wilson, who describes in his book *The Biophilia Hypothesis*, "the innately emotional affiliation of human beings to other living organisms."

In addition to research and teaching, Frumkin sees patients injured by exposure to toxic chemicals and dirty air. Most environmental-health practitioners like himself, he says, are trained to look at the environment for its threats to health. But, he asserts, "the natural environment, broadly conceived, can also enhance health."

In an article in the April 2001 issue of the *American Journal of Preventive Medicine*, Frumkin argues for a new approach to environmental health and medicine, one that focuses on the curative powers of nature rather than on its hazards. Frumkin's investigations have augmented a growing body of evidence in a variety of disciplines--from biology to environmental psychology to landscape architecture--that natural surroundings may make us humans healthier, and maybe even happier and smarter.

Compiling data from surveys and case studies around the world, Frumkin found that clinics, hospitals, nursing homes, and even prisons that incorporate some element of nature--even just a nice view--show higher rehabilitation rates. His entrance into this field is helping boost attention to the decades-long research effort to track ways in which contact with nature might have restorative effects, both physical and mental. "Environmental psychologists have been tracking this for years," says Frances Kuo, is an environmental psychologist at the University of Illinois's Human-Environment Research Laboratory. "But physicians and public-health people know little about it, and environmental policymakers even less."

Recent evidence suggests, for example, that keeping ecosystems intact, with a variety of habitat for plants and small animals, provides hosts--or "sinks"--for viruses and bacteria that might otherwise spread to humans. Vector-borne diseases, such as Lyme's disease, would have formerly been kept in check by the critters of forest, field, and meadow.



Photo by: Todd Parker

Design With Nature in Mind

"Nature is in some fundamental way important for the human psyche, and as such it is really central to public health," says environmental psychologist Roger Ulrich, director of the Center for Health Systems and Design at Texas A&M University. A pioneer in the field, Ulrich has tested these theories on patients recovering from cardiac and abdominal surgery. Patients whose hospital rooms overlooked trees required less pain medication and recovered more quickly than those whose rooms overlooked brick walls, Ulrich found.

Scientifically credible research in this area, researchers believe, could affect the future design of hospital interiors, gardens, urban landscapes, and real-estate development--and even make a new case for saving natural areas. Currently the public-health establishment is tracking a new community design movement intent on building compact, walkable communities. During the last few years, the Centers for Disease Control has begun to rally support for parks and open space, seeing them as a way to encourage a physically active lifestyle and stem the national tide of obesity, says Richard Killingsworth, national head of the Robert Wood Johnson Active Living by Design program. "We're ten years behind Canada in recognizing the need not just to promote fitness on a personal level, but in redirecting landuse policy to encourage walking, biking, and less dependence on cars."

Wild places, vistas, green sanctuaries--even a potted plant or a single flower--seem to draw people universally. Who hasn't retreated to the woods or taken a vacation in a beautiful natural spot to relieve stress or recover from illness? The neurologist and writer Dr. Oliver Sacks describes how, after a traumatic leg injury, he recovered best not in the hospital but at a rehabilitation center with a lovely garden. "A pure and intense joy, a blessing, to feel the sun on my face, and the wind in my hair, to hear birds, to see, touch and fondle the living plants," Sacks wrote in his book *A Leg to Stand On*. "Some essential connection and communion with nature was re-established after the horrible isolation and alienation I had known. Some part of me came alive, when I was taken to the garden."

Seeking solace in nature can cure psychic pain, too. Witness the way Americans, in the aftermath of the September 2001 terrorist attacks, flocked to places where they could ease their shock and sadness--to parks, flower gardens, overlooks, and other natural areas. Lynden B. Miller, a garden

designer for Bryant Park and Wagner Park in New York City described in The New York Times how neighborhood parks there were transformed with "makeshift memorials" into "healing" centers all over the city.

What is this magic in nature to which we humans respond, to which we retreat for solace and restoration? Novelist Wallace Stegner once wrote that we need the connection to wild places as a reassurance of our common bond with other creatures. He called this connection to nature our "geography of hope."

Talk to John Beal, who undertook to clean up and restore his local stream, Hamm's Creek in Seattle, 23 years ago. He'll tell you that his bonding with nature didn't just improve his health--it saved his life. A Vietnam veteran, Beal suffered from post-traumatic stress disorder and had had three heart attacks, followed by a serious motorcycle accident that landed him in the hospital. Told that his heart condition gave him less than four months to live and advised by his doctor to find a hobby that would take his mind off his troubles, he didn't know where to turn.

"Then the idea came to me: If you're going to check out, try to leave this place better than it was when you left," says Beal. He turned to Hamm Creek--then filled with appliances, computers, old tires, garbage bags--and started pulling out the garbage. "When I yanked out this huge refrigerator, I thought it would surely kill me. Instead, I felt better."

Two decades later, thanks to his efforts, the once-polluted watershed is thriving with fish, beavers, and other animals. Beal also is drawing on the energies of hundreds of volunteers. He describes dozens of cases of people disabled physically or psychologically who benefit from the exercise and feeling of accomplishment but also, he says, from "the connection to something larger than themselves."

Lost Wisdom

For millennia people looked to nature not just for sources of food and medicinal plants but also, as psychologist Carl J. Jung put it, for "the nourishing soil of the soul." And philosophers since ancient times have prescribed nature as an antidote to stress and disease. Only a century ago Henry David Thoreau wrote that humans need "the tonic of wildness."



Photo by: Ernest Braun

For the most part, however, this traditional wisdom seems to have been lost

on modern medicine and psychology, and on design and planning. So says a new brand of "eco-psychologists," who believe our artificial environments are creating new stresses and neuroses. Our need for greenery may be intensifying in reaction to the dense, urbanized, technological environments in which we live.

"Humanity has gradually separated itself from the rhythms, images, and sensations of nature, so that many people complain of a deep emptiness inside but no longer know what is missing," writes Fran Segal in *The Whole Mind: The Definitive Guide to Complementary Treatments for Mind, Mood and Emotion*.

Howard Frumkin, too, argues that the concept of restorative qualities in nature is virtually nonexistent in contemporary health care. Nevertheless, he believes that because people are so instinctively drawn to nature, it merits more research attention. He adds, "Many environmentalists work to preserve nature for very good environmental reasons, but they forget that one of the major benefits may be human health."

Dozens of studies over the last ten years have suggested that humans benefit in measurable ways from even limited exposure to nature. Rachel and Stephen Kaplan, in one much-cited study, found that office workers with a view out their window enjoyed their job more and reported better health and greater life satisfaction than those who had no view. Another study by Terry Hartig of the Institute for Housing and Urban Research at Uppsala University in Gavle, Sweden, gave subjects a series of "attentionally fatiguing" tasks. Afterward, some test participants spent 40 minutes walking in a local nature preserve, while others walked in a city or sat quietly reading and listening to music. Those assigned to the nature group did best on a standard proofreading test and reported more positive emotions and less anger.

Bernadine Cimprich, Ph.D, of the University of Michigan School of Nursing, found in a study of women who had undergone breast cancer surgery that patients who had spent 20 to 30 minutes three times a week in nature activities--from walking in a park to tending an indoor plant--could think and concentrate better.

"Unfortunately, physical activity has been engineered out of our daily lives," notes Richard Killingsworth, because communities have been designed without enough access to parks and natural areas. The public-health community is realizing that the presence of nature and parks is a good way to ensure regular physical activity, which can reduce the risk of coronary heart disease, hypertension, colon cancer, osteoporosis, arthritis, and

noninsulin dependent diabetes," he says.

Centuries before our own, such ideas were taken on faith. According to Roger Ulrich, the belief among earlier cultures, both Western and Eastern, that contact with nature can have beneficial health effects supported the creation of parks, gardens, and other landscaping in cities. The tradition of "healing gardens" in hospitals goes back to at least the 12th century in Europe. "Given the persistence of these intuitive notions, it is perhaps surprising that scientific studies to test them have begun to appear only in recent years," says Ulrich.

Does it seem ironic that, in our nature-alienated society, we seem to need studies, research, and data to prove what once seemed so intuitively true? "We need to put numbers to it. That's the coin of the realm," says Katherine Wolf, an environmental psychologist at the University of Washington. "During the last decade there's been a surge in this sort of research. The data are there."



Photo by: Susan Lapidés

Desperately Seeking Well-Being

Of course, Frederick Law Olmsted, the visionary 19th-century landscape architect who designed many renowned urban parks, didn't need such studies to put forward his own landscape aesthetic. "What we most want is a simple, broad, open space," he wrote, "the beauty of the fields, the meadow, the prairie..." Olmsted spoke of the human need for parks and of a park's chief purpose as being "its effect on the human organism...like that of music...a kind that goes back of thought and cannot be fully given the form of words."

Michael A. Kanter, assistant professor in the Department of Recreation and Leisure Studies at Brock University in Ontario, suggests that the benefits of parks and recreation have been overlooked in the past because health often is so narrowly defined as the absence of disease, or by statistical measures. He points to such direct benefits as mental, psychological, emotional, social, and spiritual health as aspects of a "broader perspective" of well-being.

Howard Frumkin says his synthesis of these ideas isn't a new concept, as much as the "rediscovery of an old wisdom," and an effort to give it credibility and apply it creatively in collaborations between medicine and other disciplines.

John Stilgoe, a professor of environmental studies at Harvard University, thinks that Frumkin's manifesto to the medical profession could signal "what may well prove to be an astonishingly fruitful collaboration" among medical, design, and environmental specialists. Such an effort could supply a much-needed health tonic "for a public desperately seeking sustained well-being."

According to Stilgoe, the latest studies are already influencing real-estate developers, who are beginning to do their own studies to evaluate public preferences.

"If it can be shown that people really want certain types of landscapes, and that they're hard-wired for it, or that their blood sugar and heart rate go down in response to beautiful landscapes," he adds, "it has far-reaching implications for land development."

Greener Cities

According to researchers like Frances Kuo, better scientific documentation leads to better understanding and, we may hope, a shift to a greener, more humane design orientation. Kuo notes, for example, that until her study for the Chicago public-housing department showed that people with views of trees showed measurably less aggression and better coping skills, the city had little interest in planting trees.



Photo by: Phil Shermeister

Now, she says proudly, "the Chicago Tribune reported that the \$10 million tree-planting grant came about because of our findings. Big-city mayors will be more interested in parks if they can prove contact with nature reduces violence. If they say, 'This reduced child abuse,' it sounds better to them than 'I've reduced nitrogen loads.'"

Roger Ulrich is pleased that studies showing the health benefits of healing gardens and hospital views may be influencing new hospital planning and health-care regulations. He hopes this can make the case for saving natural areas, too. "People need to understand that if you take that big block of green on the outskirts of town or in the heart of the neighborhood," he says, "you lose that restoration potential forever."

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